

IN THE CLAIMS:

Claim 1 (currently amended) A computing device which processes or stores information with a DNA based number system, wherein the system has four bases comprising A, T, C and G and wherein each base is assigned ~~an arbitrary~~ a value comprising A=0, T=1, C=2, G=3 and wherein both integers and real numbers are represented ~~in the form of~~ by a plurality of DNA bases, the value of ~~a the base in the system~~ plurality of bases being positional.

Claim 2 (currently amended) A ~~system~~ computing device as claimed in claim 1, wherein each of the real numbers are ~~is~~ represented as ~~floating point~~ representation in 32-bases, including a first plurality of bases for representing a magnitude of the real number and a second plurality of bases for representing an exponent.

Claim 3 (currently amended) A method for processing or storing information comprising (i) representing numbers in the form of DNA bases (A, T, C, G) comprising:

- a) assigning ~~arbitrary~~ values to each DNA base wherein A=0, T=1, C=2, G=3;
- b) assigning ~~arbitrary~~ complementary values to each DNA base ~~such that~~ with a complement of A = G, a complement of T=C and vice-versa; and

(ii) processing or storing information with the numbers in the form of DNA bases.

Claim 4 (currently amended) A method as claimed in claim 3, wherein each of the numbers ~~the number~~ is selected from the group consisting of a positive integer, a negative integer, a positive real number and a negative real number.

Claim 5 (cancelled)

Claim 6 (currently amended) A method as claimed in claim 3, wherein each number is represented by a plurality of bases and the value of each base in the plurality of bases ~~DNA-based number system~~ is positional.

Claim 7 (currently amended) A method as claimed in claim 4, wherein a ~~the~~ positive integer is represented in a cell comprising the DNA bases ~~converted into the DNA base representation by:~~

- (a) dividing the positive integer ~~so obtained~~ by four and extracting a ~~the~~ remainder;
- (b) repeating step (a) till a quotient of 0 is reached;
- (c) extracting a ~~marking the~~ first remainder digit as the least ~~lest~~ significant digit (LSD);
- (d) extracting a ~~marking the~~ last ~~extracted~~ digit as the ~~most~~ main significant digit (MSD);

- (e) writing the digits extracted from left to right from MSD to LSD; and
- (f) completing a the cell by adding bases as padding, if required, and  
adding a sign base to at the left of the cell.

Claim 8 (currently amended) A method as claimed in claim 4, wherein the  
numbers comprise negative integer integers is converted to a DNA base  
representation thereof with each of the negative integers represented in a cell by;

- (a) first changing the negative integer into a positive integer;
  - (b) dividing the positive integer ~~so obtained~~ by four and extracting the a  
remainder;
  - (c) repeating step (c) till a quotient of 0 is reached;
  - (d) extracting a ~~marking the~~ first remainder digit as the ~~last~~ least significant  
digit (LSD);
  - (e) extracting a ~~marking the~~ last ~~extracted~~ digit as the ~~most~~ main significant  
digit (MSD);
  - (f) writing the digits extracted from left to right from MSD to LSD; and
  - (g) completing a the cell by adding bases as padding, if required, and  
adding a sign base to the left of the cell;
  - (h) producing a complement by changing the A's to G's and T's to C's and  
vice versa; and
  - (i) adding a base T (=1) to the complement;
- wherein the left most base of the completed ~~byte/cell~~ cell represents the a  
sign of the integer.

Claim 9 (currently amended) A method as claimed in claim 4, wherein the numbers comprise positive real number numbers with each of the positive real number represented in a cell by is converted into a DNA-base representation thereof, comprising:

- (a) first converting the positive real number into a positive integer by shifting a the decimal point to the right;
- (b) dividing the positive integer ~~so obtained~~ by four and extracting the a remainder;
- (c) repeating step (b) till a quotient of 0 is reached;
- (d) extracting a ~~marking the~~ first remainder digit as the ~~last~~ least significant digit (LSD);
- (e) extracting a ~~marking the~~ last ~~extracted~~ digit as the ~~most~~ main significant digit (MSD);
- (f) writing the digits extracted from left to right from MSD to LSD; and
- (g) completing a the cell by adding bases as padding, if required, and adding a sign base to the left[[.]] of the cell; and
- (h) recording the number of points shifted and represented as an exponent, wherein the leftmost base represents a sign base of the number, and the next 23-bases represent the a magnitude and the a remaining rest 8-bases represent the an exponent.

Claim 10 (currently amended) A method as claimed in claim 4, wherein the numbers comprise positive real numbers and negative real numbers, wherein a

the sign base ~~in the case of~~ each of the positive real number numbers is "T" and  
a sign base ~~in the case of~~ each of the negative real number numbers is "C".

Claim 11 (currently amended) A method as claimed in claim 4, wherein the  
numbers comprise negative real numbers with each of the a negative real  
number numbers ~~is converted into a DNA base representation thereof, the~~  
~~method comprising represented in a cell by:~~

- (a) taking the negative real number as a positive real number;
- (b) converting the positive real number into a positive integer by shifting the  
a decimal point to the right;
- (c) dividing the positive integer ~~so obtained~~ by four and extracting the a  
remainder;
- (d) repeating step (b) till a quotient of 0 is reached;
- (e) extracting a ~~marking the~~ first remainder digit as the ~~last~~ least significant  
digit (LSD);
- (f) extracting a ~~marking the~~ last extracted digit as the ~~most~~ main significant  
digit (MSD);
- (g) writing the digits extracted from left to right from MSD to LSD; and
- (h) completing a the cell by adding bases as padding, if required, and  
adding a sign base to the left~~[[.]]~~ of the cell; and
- (i) recording the number of decimal points shifted ~~and represented~~ as an  
exponent;

wherein the leftmost base represents a sign base of the number, and a next  
23-bases represent the a magnitude and a remainder of the rest 8-bases

represent represents the an exponent.

Claim 12 (withdrawn/currently amended) A software based on the DNA based number system of claim 1 wherein:

- a) the integers are represented as 8 bases/cell and a complement representation ~~is used to represent~~ represents negative integers and wherein positive integers do not have complements and ~~the~~ a leftmost base in the cell represents ~~the~~ a sign of the integer;
- b) and wherein each of the real numbers are is represented as 32 bases/cell ~~using floating point representation scheme~~, wherein the a leftmost base represents ~~the~~ a sign of the real number, a next 23 bases ~~represent~~ represents the a magnitude of the real number and a remaining ~~rest~~ 8 bases ~~represent~~ represents the an exponent i.e. representing a number of bases the a decimal was shifted towards right to convert the real number to an integer.

Claim 13 (new) A computing device as claimed in claim 1, comprising software which translates the plurality of bases into the integers and real numbers.

Claim 14 (new) A computing device as claimed in claim 13, wherein:

- a) the integers are represented as 8 bases/cell and a complement representation represents negative integers and wherein positive integers do not have complements and a leftmost base in the cell represents a sign of the integer;

- b) and wherein each of the real numbers is represented as 32 bases/cell, wherein a leftmost base represents a sign of the real number, a next 23 bases represents a magnitude of the real number and a remaining 8 bases represents an exponent representing a number of bases a decimal was shifted right to convert the real number to an integer.

Claim 15 (new) A method for processing or storing information comprising (i) representing numbers in the form of DNA bases (A, T, C, G) by

assigning values to each DNA base; wherein a positive integer is represented in a cell comprising the DNA bases by:

- a) dividing the positive integer by four and extracting a remainder;
- b) repeating step (a) till a quotient of 0 is reached;
- c) extracting a first remainder digit as the least significant digit (LSD);
- d) extracting a last digit as the main significant digit (MSD);
- e) writing the digits extracted from left to right from MSD to LSD; and
- f) completing the cell by adding bases as padding, if required, and adding a sign base at the left of the cell.

Claim 16 (new) A method as claimed in claim 15, wherein the numbers also comprise negative integers with each of the negative integers represented in a cell by;

- (g) first changing the negative integer into a positive integer;
- (h) dividing the positive integer by four and extracting a remainder;
- (i) repeating step (c) till a quotient of 0 is reached;

- (j) extracting a first remainder digit as the least significant digit (LSD);
  - (k) extracting a last digit as the main significant digit (MSD);
  - (l) writing the digits extracted from left to right from MSD to LSD; and
  - (m) completing the cell by adding bases as padding, if required, and adding a sign base to the left of the cell;
  - (n) producing a complement by changing the A's to G's and T's to C's and vice versa; and
  - (o) adding a base T (=1) to the complement;
- wherein the left most base of the completed cell represents a sign of the integer.